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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,790	09/12/2003	Stefan Fliss	15540-011001 / 1800230; D	5876
26161	7590	10/06/2005	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			ROSENBERGER, RICHARD A	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,790

Applicant(s)

FLISS, STEFAN

Examiner

Richard A. Rosenberger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/12/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/8/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

1. Claims 14, 15, 19-27 and 35-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14, in the preamble, states it is claiming "a laser", but in the body of the claims there is not laser structure and not relation set forth between any element claimed and any laser of laser structure. Thus the claim is not directed to a laser, as no laser or laser structure of relation to laser structure is claimed, and the scope of the claim is the actual structure set forth in the body of the claim. Similarly for claims 19, 22 through 27, which purport to, but do not, claim a laser.

Claim 15 is unclear because it is not set forth what, if any, relationship the CO₂ laser of claim 15 has with the structure set forth in claim 14.

As claim 19 does not clearly set forth a laser, the subject matter of claim 20 is unclear.

Claim 38 calls for switching off a laser". The laser resonator of parent claim 35 is no more than a non-limiting statement of intended use, and, to the degree that the laser of the intended use may be read into the claims, the use of the article "a" in claim 38 makes it unclear if the laser is the same laser or a different laser.

It is noted the claim 16, and claim 17-18 dependent therefrom, places the subject matter of claim 14 in the context of laser structure (a laser resonator), and thus this rejection does not apply to these claims.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 8, 14, 22, 28, 32, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Taniguchi et al (US 6,496,257).

As in claims 1, 14, 28, and 35 (see the comment of the scope of claim 14 above), figures 18 and 19 of the reference, Taniguchi et al shows an apparatus for monitoring the functionality of an optical element (objective lens OB) comprising a detector (120) and a light source (118) whose radiation is reflected to the detector by a surface of the optical element facing the detector and the light source. As for the wording of claim 28, the contamination of the lens OB is “damage” in that it damages the functionality of the lens. As for claim 35, “from monitoring damage to an optical element of a laser resonator” is a non-limiting statement of intended use because there is no relationship to a laser set forth.

As in claims 3 and 22, the light source and detector are disposed laterally of the optical element.

As in claims 8 and 32, there is a comparator for comparing the detected light intensity with a reference intensity (measured by 121).

5. Claims 2, 4-7, 9-13, 15-21, 23-27, 29-31, 33-34, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al.

See above.

As in claims 2, 13, and 21 the reference illustrates that the light beam is directed to the center of the element, and it would have been obvious to monitor the center of the element both because it is at least suggested by the reference and it would make sense to monitor the portion of the element which is being used because this is the portion which contamination or the like will degrade the performance of the optical element.

As in claims 4, 13, and 23 the reference discusses measuring the reflectance, which at least clearly suggests placing the light source and detector at the same angles to the surface of the optical element. As in claims 5, 13, 24, 29, and 36, those in the art could, using only ordinary skill, select an appropriate angle for the measurement.

As for claims 6 and 30, the reference does not integrating the light source and detector into a holder for the optical element. It would have been obvious that such a monitoring apparatus could be attached to a holder of an optical element, and this would have the advantage of keeping the relationship between the optical element and the monitoring apparatus proper to better insure accurate measurements, and would

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save time because the monitoring could be done without having to move the optical element or monitoring apparatus to make the needed measurements.

Those in the art could choose appropriate commercially available light sources and detectors for the monitoring apparatus, light emitting diodes and photodiodes (claims 7 and 31) are both so well known and available in the art that official notice is sufficient.

The reference teaches comparing the measured reflectance of the optical element with a reference value (column 31, lines 23-39). Those in the art could, using only ordinary skill, use the direct measured intensity of the light beam as the measured reflectance and thus compare the detected intensity with the reference value to generate the error signal (claims 8, 19, 33 and 37).

It would have been obvious to monitor any type of optical element in which a reflectivity change will reflect a possible or actual degradation in performance; the operation of the system does not depend upon the material of which the optical element happen to be made (claims 10-13, and 25-27).

Claims 15-18, 20, 34 and 38 all call for, with various degrees of specificity and clarity, that the optical element being measured is a mirror in a laser cavity. Taniguchi et al measured a lens in a projection exposure apparatus. Those in the art would have recognized that the system is a more general system with utility for any optical element for which a change in reflectance would indicate possible or actual degradation of performance, including laser mirrors, which are known to depend upon proper reflectance for proper performance, a characteristic so well known that official notice is sufficient. Thus it would have been obvious to use such as monitoring system to monitor

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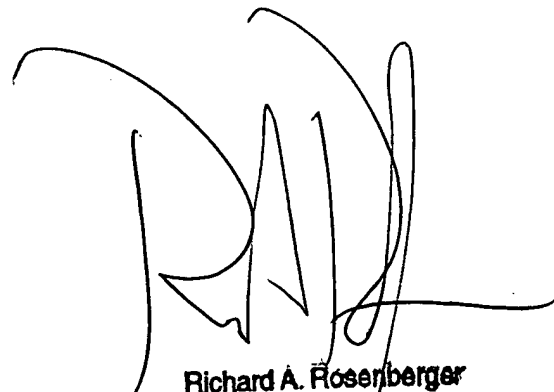
a laser mirror, and it would have been obvious to switch off the laser when degradation of performance is detected.

6. Imagawa et al (US 4,423,726), Ortiz (US 5,159,402) and Keilbach (US 5,929,981) show systems of monitoring optical elements in place, including mirrors in optical cavities. Hyun et al (US 4,691,106), cited by applicants on the information disclosure statement, shows measuring the reflectance of a mirror for possible defects or damage.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
30 September 2005



Richard A. Rosenberger
Primary Examiner